

Birds and Mammals in Tennessee.
By Watson M. Perrygo.

In continuation of the work begun last year in West Virginia in April I was assigned the study of the birds and mammals of Tennessee was undertaken to secure material from that area lacking in the collections of the National Museum from that area. In this work we had the cooperation of the State Game Warden Mr. Howell Bunting — — — — — who granted the necessary permits and of officials everywhere concerned with game or with the care of the National Forests or State Game Preserves.

Rey 10

The National Museum had comparatively little material in the way of birds and mammals from Tennessee; therefore C. Lingebach and the writer were assigned to collect the desired specimens.

With Carleton Lingebach as assistant ^{to begin the work in} ~~He~~ left in the early part of April 1937 ^{for} the Austroriparian life zone in the Mississippi River bottoms in the vicinity of Memphis where we ~~stayed~~ remained for about two weeks collecting in the cypress swamps, securing many interesting specimens of birds and mammals.

Leaving here we went to the northwestern part of the state, and ^{for} incidentally the northern part of the Austroriparian life zone and worked around Reelfoot Lake. This is one of the most interesting spots in Tennessee for nature lovers, and ~~for~~ nimrods and anglers, as ducks, ^{and other game} and fish abound ~~here~~. This lake was formed in the winter of 1811-12 by a series of earthquakes ^{that} caused this low ~~land to sink over an area~~ country ~~for~~ approximately four miles wide and fourteen miles long to sink.

During our successful two weeks here we were joined by Dr. Friedmann, Curator of Birds of the National Museum.

~~as the spring season was now farther advanced we moved to a higher area in the~~ ^{it is said that} We departed from Reelfoot Lake a few days later southeastwardly ~~for the~~ ^{and the region} densely forested, ~~and~~ rolling hills of Wayne County. ~~Probably~~ the last wolves taken in the State ~~were~~ were killed here a number of years ago, ^{we} Evidently ~~it~~ was once well populated by the Indians from the many sites ~~one~~ saw along the numerous creeks ~~here~~. ^{Indians} They are said to have held their councils of war at Natural Bridge, Tennessee which is one of the scenic spots of the state.

Continuing ^{during the latter part of May} ~~On our way~~ north we stopped at Crossville on the Cumberland ~~Mt.~~ plateau at an altitude of 2000 feet. This is a dry limestone section ~~with~~ timber ^{ed with} of second growth pine and oak ~~trees~~. Although we obtained a variety of birds ~~here~~, the mammals were very scarce.

The first 11 June ^{into the high mountain area of} After our stay here we moved ~~on to~~ to the northeastern part of the state

where we camped in the beautiful, fertile Shady Valley which lies between the ~~mountains~~ Holston and Iron Mts. at an altitude of 2900 feet. In the glade in the center of the valley we obtained many ~~of the~~ ^{desirable} specimens. Dr. Wetmore joined us here for a few days. Grouse were very abundant on the ~~Holston and Iron Mts.~~ ^{mountains} and among the many interesting birds collected was a Swainson's warbler taken in a miniature

bog on the Holston Mts.

Through the cooperation of the National Park Service we had permission for work in

For the next two weeks we stayed near Crosby in the Smoky Mountains

On the advice of Mr. Stephen Kay, Park Naturalist, we located near Crosby when we remained for the latter half of June

National Park collecting in the Canadian zone on Mt. Guyot, the second highest peak in the Park at an altitude of ~~6621~~ ^{on 6000 feet} feet and on the adjoining knobs. The majority of the trees above 6000 feet are the Balsam (*Abies fraseri*). *In the deeply shaded woodlands of these high mountains we heard the song of the winter wren, a* ^{and found many nesting warblers and the} song of trills and runs ^{which would} delight any nature lover. *We found that the Cloudland red squirrel is* ~~was~~ ^{and} quite scarce. *We were unsuccessful in our attempts to trap the Canadian flying squirrel. However we were fortunate to secure an olive-sided flycatcher. Among the many interesting things seen were two black bears.* Mt. Guyot proved to be most fruitful for Canadian birds and mammals.

We spent the ~~last two weeks~~ ^{first half of July} in the Cherokee National Forest camping at the base of Big Frog Mountain near the ~~Georgian~~ ^{southern} ~~border~~ ^{of the state, from} ^{in a} on Big Frog, Little Frog and Beans Mountains, ~~This~~ ^{dry and at this season} region is forested with hardwood and pine, ~~and~~ ^{this} is quite arid. Nevertheless, we obtained a fair number of specimens.

On several occasions we saw and heard ravens flying over Big Frog Mountain

On July 19 we returned to Washington.

I left Washington for the autumn collecting trip on September 9, 1937, ^{as assistant} accompanied by Henry R. Schaefer. At Bristol, ^{mountain} Tenn. we secured permission from the Forest Ranger there to collect on Roan Mt. which is about 6300 feet high ~~and~~ located ~~southeast of Elizabethton, Tenn.~~ on the North Carolina-Tennessee border. After about eight miles of climbing in low gear, ^{along a rough, winding mountain road} we reached the top and pitched our tent on the leeward side behind some balsams for a wind break. ~~This~~ ^{The} *This is said to be one of the coolest spots in the Southeastern United States*

~~The~~ The thermometer registered F. temperature was very cool being around 30° each night, and one clear sunny day it ~~a contrast to the intense heat that we had left behind in the lowlands~~ reached 54°. A great many days the clouds ~~were~~ down over the mountain and we could ~~came~~ not see our way to collect. About 6 a.m. each morning ravens ~~would~~ pass over our ~~and many other unusual birds and mammals when~~ camp flying north. In spite of the foggy weather and other adverse weather conditions we added materially to the collection while in this region.

After ~~our~~ futile trapping for northern flying squirrels in the balsam and spruce forests, we moved our traps down to an altitude of 5500 feet and lower in the birch woods, obtaining one ^{specimen} after several days of trapping. ~~at the end of September we moved~~ [^] We stopped for about a week ~~to~~ Clinch Mt. ^{mountain} in the eastern part of the ~~state~~ where the forest consists of second and third growth pine and hardwoods ~~and~~. We made a fair [^] representative collection here.

~~Reelfoot Lake to follow~~ We returned to the Mississippi Lowlands the first week in October ~~to~~ ^{at} acquire representatives of the Fall migration in the cotton growing districts ~~and the wooded bottomlands~~ ^{at this season}. Considering the windy weather which handicaps ~~bird~~ collecting, we obtained good ^{following this} results. We spent about a week in the tobacco growing section of Clarksville, north of Nashville near the Kentucky line, making collections along the Cumberland River which is one of the few rivers flowing north in the United States.

On November 1 we moved to Fayetteville, south of Nashville, collecting in the farming sections of Lincoln and Giles Counties. A great part of this section is rocky, covered with scrub cedar and cacti. I have never seen rice rats and crows more abundant than in this area.

~~After a fruitful ten days here and the weather getting much too cool for collecting, we were compelled to leave for Washington.~~ ^{completed our work for the season, winter} had come, and we returned to

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For the next two weeks we stayed near Crosby in the Smoky Mountains National Park collecting in the Canadian zones on Mt Guyot, the second highest peak in the Park at an altitude of 6621 feet and on the adjoining knobs. The majority of the trees above 6000 feet are the Balsam (Abies fraseri).

Here one may hear many little winter wrens giving forth their beautiful song of trills and runs which would delight any nature lover. We found that the Cloudland red squirrel is getting quite scarce. We were unsuccessful in our attempt to trap the Canadian flying squirrel. However we were fortunate to secure an olive-sided flycatcher. Among the many interesting things seen were two black bears. Mt. Guyot proved to be most fruitful for Canadian birds and mammals.

We spent the last two weeks in the Cherokee National Forest camping at the base of Big Frog Mountain near the Georgian border. While here we collected on Big Frog, Little Frog and Bear Mountains. This region is forested with hardwood and pine and is quite arid. Nevertheless, we obtained a fair number of specimens. On several occasions we saw and heard ravens flying over Big Frog Mt.

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FIELD WORK WITH BIRDS AND MAMMALS IN SOUTH CAROLINA.

By W. M. Perrygo.

Last year (1939) our intensive work in the collection of birds and mammals for the National Museum was in North Carolina. To continue that work in 1940 it was arranged to follow up with investigations in South Carolina, making especial study of the southern and of the Appalachian Range and the southern forms along the coastal plain. Through the courtesy of Mr. A. A. Richardson, Commissioner of Game and Fishes, Columbia, S. C., officials of the National Forests, and many generous land owners we were able to make the necessary arrangements.

Leaving Washington April 8, with J. S. Y. Hoyt as assistant, we began work near Conway in Horry County collecting in the flat pine woods, cypress swamps, and in the salt marshes near the coast. Our 10-day stay here netted many interesting and desirable specimens. Then moving southwestward further towards the interior of the coastal plain we settled in Dorchester County near St. George, working along the drainage of the Edisto River. The most of our collecting was done in the cypress swamps, in open pine woods, and near the edges of cotton fields.

Next we moved to Hardeeville to investigate the Lower Austroriparian life zone as it occurs in the extreme southern portion of the state. Most of our work was done in Beaufort County in the cypress and deciduous swamps, and through abandoned farms, salt marshes, and islands -- the latter including Hilton Head. In this area near the coast and on the

islands we found considerable palm growth. Painted buntings and chuck-wills-widows were very common, and birdlife in general was much more abundant than in previous areas.

After a fruitful stay in Hardeeville we moved northwestward into the Piedmont region in the vicinity of Union, working Union and Newberry Counties in Sumter National Forest. In old broom-sedge fields we found Bachman's sparrows, and along the streams were the usual types of birds occurring in such localities. Journeying southwestward along the Savannah River, we settled at McCormick, when again the Sumter National Forest offered us ample collecting grounds over the pine covered rolling hills in McCormick, Edgefield and Abbeville Counties. One of the most interesting finds here was the nesting of the mountain vireos which we had known elsewhere only in more elevated regions in the mountains. While here J. C. Calhoun joined us to assist primarily in mammal collecting.

As the mountain forms of birds were now located in their summer homes we moved northwestward to Walhalla where we collected along the Chattooga Ridge in Oconee County. As the mountains are only slightly above 3000 ft. and are almost on the extreme southern end of the Appalachian Range, they lack the firs typical of the Canadian Zone. Here we found golden-winged and worm-eating warblers and mountain vireos in abundance.

The final area for the summer was in the vicinity of Caesar's Head in Greenville County, where we collected along Standing Stone,

Caesar's Head, Bradford, and Sassafras Mountains -- the latter being about 3500 ft. in elevation, and the entire area the most elevated in the state. The slopes are steep and deciduously wooded and housed more of the mountain forms than the previous section despite the absence of typical Canadian flora. A few pairs of song sparrows were nesting here, in addition to chestnut-sided warblers. This completed the spring and summer investigation for the season, and we returned to Washington July 23.

Accompanied by John Webb of the Division of Birds, I left for the fall collecting trip September 14. Our first stop was at Rock Hill above the Fall Line in northern South Carolina. Most of our work was along the rolling hills bordering the Catawba River and in the wooded bottom lands so typical of the Piedmont region. In spite of the unusually warm weather we found representatives of the birds that we needed to tie in with those collected in North Carolina just to the north along the same river during the previous year. On October 2 we moved eastward to Cheraw to work along the Pee Dee River. The extensive swamps along the river yielded many valuable specimens.

From here on October 16 we continued southward to Allendale to complete the work along the Savannah River. Through the courtesy of Mr. R. B. Vance of Allendale who gave us permission to collect on his farm we found an excellent concentration of birdlife in the cypress swamps, open pine woods, and along the edges of the fields -- all within a short radius, which is most unusual for the coastal plain.

Brown-headed nuthatches, red-cockaded woodpeckers, Bachman sparrows, and other birds typical of these habitats were quite numerous.

The next two weeks were spent in Olanta working along the Lynch River, one of the slow moving tributaries of the Pee Dee River. The final area centered around McClellanville in Charleston County where we had an excellent stay, collecting in the salt marshes near Cape Romain Wildlife Sanctuary. Sharp-tailed and seaside sparrows, rails, and boat-tailed grackles were seen in great numbers. In the interior we worked in the Francis Marion National Forest which has an excellent growth of pine and scrub oak. The red-cockaded woodpecker was more abundant here than any area investigated. Equally abundant were wild turkeys which are said to be descendants of the original wild strain native to this area. December 1 brought the survey to a close and we returned to Washington December 2.

Last year (1939) our intensive collecting took place in North Carolina. To continue that work and to fill in various gaps in the upper Carolina collection, this year it was decided to follow up the work in South Carolina making especial study of the Southern Appalachian Range and the southern forms along the coastal plain. It was through the courtesy of Mr. A. A. Richardson, Commissioner of Game and Fishes, Columbia, S. C.; officials of National Forests; and many generous land owners that we were able to carry on our work.

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Next we moved to Hardiville to investigate the typical Lower Austroriparian life zone which occurs in the extreme southern portion of the state. Most of our work was done in Beaufort County in the cypress and deciduous swamps, abandoned farms, salt marshes, and islands — including Hilton Head. In this area near the coast and on the islands we found considerable palm growth. Painted buntings and chuck-wills-widows were very common. Birdlife in this area was much more abundant than in previous areas.

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in Sumter National Forest. In old broom sedge fields we found Bachman's sparrows, and along the streams we found the usual types of birds occurring in such locals. Journeying southwestward along the Savanna River, we settled at McCormick. The Sumter National Forest offered us ample collecting grounds along the pine covered rolling hills in McCormick, Edgefield and Abbeville Counties. One of the most interesting finds was nesting blue-headed vireos. While here J. C. Calhoun of Northwestern University joined us to assist primarily in mammal collecting.

As the mountain forms of birds were now nesting, we moved north-westward to Walhalla where we collected along the Chattooga Ridge in Oconee County. As these mountains are only slightly above 3000 ft. and are almost on the extreme southern end of Appalachian Range, they lack the firs typical of the Canadian Zone. Here we found golden-winged and worm-eating warblers and blue-headed vireos in abundance.

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The next two weeks were spent in Atlanta working along the Lynch River, one of slow moving tributaries of the Pee Dee River. The final area centered around McClellanville in Charleston County where we had an excellent stay collecting in the salt marshes near Cape Romain Wildlife Sanctuary. Sharp-tailed and seaside sparrows, rails, and boat-tailed grackles were seen in great numbers. In the interior we worked in the Francis Marion National Forest which has an excellent growth of pine and scrub oak. The red-cocaded woodpecker was more abundant here than any area investigated. Equally abundant were wild turkeys which are said to be the remnant of the original wild strain native to United States.

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COLLECTING BIRDS AND MAMMALS IN NORTH CAROLINA.

By W. M. Penruddock

work on the geographical distribution of

To continue the collecting of birds and mammals in some of our

mountainous states in the southeast, where a representative collection of

the general run of common specimens ~~was~~ ^{has been} lacking in the National Museum, the

officials of the Museum decided to work this year in the state of North

Carolina. This state is ~~most~~ very interesting for this type of work because ^{of its}
~~variety of terrain of~~ ~~On the broad coastal plain are vast areas covered by~~
~~of its~~ ~~most~~ pine and cane covered coastal plains with great cypress swamps

~~along the lower courses of the~~ ~~modulating~~
~~broad farms and wooded hills~~ ~~gradually into the western mountains and so to the high~~
~~and the western part of the state the crest of the Appalachian range.~~

Throughout the season

We had the excellent cooperation of Mr. J. D. Chalk, Commissioner of Game and Fish, Department of Conservation at Raleigh, N.C., whose kind offices granted the necessary permits, also the officials connected with the National Forests, and of the many land owners on whose land we collected.

With Gregor Rohwer as my field assistant, I left the first part of April 1939 to begin work in the cypress swamps of the northeastern part of the state near Elizabeth City. Here we remained for about two weeks working in the cypress swamps, pine woods, along river banks, and farm lands collecting some of the desired birds and mammals.

As the spring migration ^{began in full force} was about to commence, we moved inland to Sampson County in the vicinity of Clinton and worked along the streams and cypress swamps obtaining many interesting specimens.

~~The first week in~~ ^{continued}
About the middle of May, we ~~moved~~ down to Brunswick County in the lower austral zone ~~into~~ ^{establishing} the extreme southeastern part of the state, work-

Here we found
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with blue heads, green backs and red breasts
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towhees and many other interesting denizens of the southern woods. While
here we ~~crossed~~ ^{crossed to} Smith Island which is just off the coast from Southport,
where it is claimed that the only palm trees that grow ^{naturally} in the state are
found. We did some very interesting work here.

for the latter part of May

Moving to Richmond County we worked in the cotton and corn growing section of the state along the Pee Dee River near Rockingham. We were fortunate to find a ~~southern~~ area near the North Carolina - South Carolina state line where we collected ^{some} ~~more~~ southern birds, one being the white-eyed towhee.

The early part of June found me in Cherokee County near Murphy, ^{North Carolina} which is in the extreme southwestern part of the state, investigating the mountains in this region, Pack Mountain being the highest. Completing the ~~studies~~ work here, after much difficulty because of the rainy weather, I went east to Franklin and worked in the Nantahala National Forest on Wayah Bald, Standing Indian and adjoining mountains. These mountains are well over 5000 feet but, being so far south, near the Georgia line, they lack the balsam and spruce trees which are usually associated with a typical Canadian zone. Wayah Bald and Standing Indian Mountains are State Game Refuges, ^{Part 11} ^{was done} I had to confine my work out of the preserves. While in this area I visited Highlands to obtain a few specimens of blue-headed vireos. This mountain form of the blue-headed vireo was originally named from Highlands.

first half of July
I spent the last two weeks of the spring and summer trip in the beautiful and mountainous section in the northeastern part of the state,

cont'd

Our camp was on the south shore of Lake Mattamuskeet with a cold and sunny day. Two of cold we saw the arrival of the first Canada geese from the north. Flocks of the great birds came in high overhead, swooping around over this wintering ground and surveying it with craning necks before coming slowly down with set wings to rest on the water. To the east were toward Stumpy Point were broad bays with scattered bushes, stands of small pines and magnolias and thickets of pine, ~~and~~ gum and cam. The land here throughout is level, without with no hills. Through the country of the Biological Survey we had permission to trap fox mice and shrews in the wild life Refuge, whose boundary was just behind our cabin and secured here some excellent specimens.

collecting on Three Tops, Elk Knob, Snake Mountain and other adjoining mountains, obtaining a fair number of specimens considering the heavy rains which hampers work of this kind. On July 22 I returned to Washington.

For work in

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with Charles Wheeler as field assistant. Our first area was in Rockingham

County in the north central part of the state. We collected along the

head waters of the Dan and Haw Rivers, where, considering the extremely warm

and the country dry, weather, we collected a fair amount of specimens.

The latter part of September we moved southwest to Iredell and Catawba Counties. Most of our work was confined to the wooded bottom lands

of the Catawba River. On October 10 we moved east to Engelhard and collected

in the low, flat and swampy sections of Hyde and Dare Counties.

country where deer and other game abound and one may find it an excellent country for deer and goose hunting. We had a

very profitable stay here obtaining birds and mammals typical of this low

country. While here we were joined by Dr. Alexander Wetmore and Mr. J. E. Graf.

#

Leaving Engelhard on October 1 we moved west to Pitt County, collecting in the vicinity of Bethel. Along Conetre Creek we found some very

good stands of hardwood trees where we collected some very desirable specimens.

Northwest of Greenville in Pitt County we collected in some large tracts

of pine woods where we found white-eyed towhees, brown-headed nuthatches and red-

cockaded woodpeckers quite abundant.

Our last two weeks were spent in and near the summer resort of Beaufort in Carteret County. We collected in the salt marshes and low pine lands. On

several occasions we hired boats and visited the islands across Core Sound
~~when Snow Buntings were found among~~
~~collecting on the sand dunes.~~ Our stay here proved to be very fruitful. This
~~in the way of specimens~~ which completed our work for the season and at
~~the end of November~~ we returned to Washington.
and other northern birds were seen

The results of the season include an
excellent representation of the birds of the state. Small
Mammals were ~~seen~~ ^{seen} except along the
coast plain ~~so that~~ and few were ~~seen~~ seen
in the Piedmont area.

Collecting Birds and Mammals in North Carolina

To continue the collecting of birds and mammals in some of our mountainous states in the Southeast, where a representative collection of the general run of common specimens was lacking in the National Museum, the officials of the museum decided to work this year in the state of North Carolina. This state is very interesting for this type of work because of its vast pine and cane covered coastal plains, with a great ~~no~~ cypress swamps along its many streams; the central part of the state is the piedmont area, and in the western part of the state the crest of the Appalachian range.

We had the excellent cooperation of Mr. J. D. Chalk, Commissioner of Game and Fish, Department of Conservation at Raleigh, N.C., whose office granted the necessary permits, also the officials connected with the National

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The latter part of September we moved southwest to Iredell and Catawba Counties. Most of our work was confined to the wooded bottom lands of the Catawba River. On October 10 we moved east to Engelhard and collected in the low, flat and swampy sections of Hyde and Dare Counties. In this area one may find it an excellent country for deer and game hunting.

He had a very profitable stay here obtaining birds and mammals typical of this low country. While here we were joined by Dr. Alexander Wetmore and Mr. J. C. Gray.

Leaving Englehardt on October 1st we moved west to Pitt County, collecting in the vicinity of Bethel. Along Conetoe Creek we found some very good stands of hardwood trees, where we collected some very desirable specimens. Northwest of Greenville in Pitt County we collected in some large tracts of pine woods where we found white-eyed towhees, brown-headed nuthatches and red-cockaded woodpeckers quite abundant.

Our last two weeks were spent in and near the summer resort of Beaufort in Carteret County. We collected in the salt marshes and low pine lands. On several occasions

we hired boats and visited the islands across Cow Sound collecting on the sand dunes. Our stay here proved to be very fruitful in the way of specimens which completed our work for the season.

(From "Explorations and Field-Work of the
Smithsonian Institution in 1936")

COLLECTING BIRDS AND MAMMALS IN WEST VIRGINIA

By WATSON M. PERRYGO

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As a considerable area in West Virginia was unrepresented in the National Museum's collection of birds and mammals, during the past season, Carleton Lingeback and I were assigned the task of collecting specimens in that region. We left on April 16, 1936, for White Sulphur Springs, accompanied by Dr. Remington Kellogg. During the 2 days spent there, we set traps for a subspecies of flying squirrel, but were unsuccessful in our efforts. However, we did get some mice and birds. From there we continued to Huntington, in the southwestern corner of the State. We stayed there about 2 weeks, working up the Guyandot Valley to Logan, where, among other things, we got a Swainson's warbler, this constituting the second record from West Virginia. We also worked up the Twelve Pole Creek to Dunlow.

Dr. Kellogg returned to Washington, and we continued on to Summersville, where the altitude reaches 1,750 feet. This section, about the middle of the State, is heavily wooded country, and rhododendron grows abundantly. Dr. Alexander Wetmore joined us here on May 8.

In Richwood we obtained permission from the forest ranger to visit Cranberry Glades, which is part of the Monongahela National Forest. We followed the Cranberry River, starting at an altitude of 2,200 feet, and went up to about 3,300 feet to the glades. This beautiful river is one of the finest trout streams in the State. The glades lie between Black Mountain and the Kennison Mountains and are grown with spruce forest beginning at about 3,000 feet. Birds are very numerous, especially the grouse, which we could hear drumming daily through the mountains. We saw several signs of bear, this section being apparently one of their main strongholds in the State. We saw here flat, moss-covered areas which seem to have been lake bottoms at one time. The scenery has a northern aspect recalling parts of Canada.

After Dr. Wetmore's return to Washington, we went to Grantsville, where we spent a profitable week, obtaining a variety of birds.

In the northeastern part of the State we camped in an oak grove near Philippi. The hills here were more rolling and less steep than where we had been previously, the altitude being around 1,900 or 2,000 feet. Many kinds of birds and mammals were abundant here; we got a good collection of flying squirrels, as well as two Bewick's



FIG. 26.—Dr. Kellogg at work in Wilson's hunting camp.
Huntington, West Va.



FIG. 25.—Canaan Valley, north of Middle Mountain.



FIG. 27.—Cranberry Glades, showing typical spruce forest.



FIG. 28.—Cranberry Glades, showing mounds of moss.

wrens. Copperhead snakes are very plentiful in this region, and under one rock 26 of them were discovered.

We returned to Cranberry Glades, where we lived in a government cabin. With squirrel traps on the trees and mouse traps on the ground we caught a number of specimens, among which was a new form of flying squirrel, since named by Gerrit S. Miller, Jr., of the National Museum. This form is somewhat similar to the small flying squirrel of the East, but is larger and redder in color. It is related to the Canadian species. Among the most interesting birds collected from there were a nestling saw-whet owl and a new subspecies of song sparrow. Cranberry Glades proved most fruitful for birds and mammals.

For the next 6 days we camped on Shavers River in the Cheat Mountains. There we obtained a fine series of bird and mouse skins and more specimens of the flying squirrel mentioned above. These mountains are cool and damp, with fog every night, unlike others of the same altitude in other parts of the State. Deciduous and spruce trees thrive on the mountains, and balsam firs grow in the valleys. From here we went to Middle Mountain, where we stayed in a forest ranger's cabin in a spruce forest. One morning as we started out we discovered tracks that seemed to be those of a puma, indicating that this animal may still live in the spruce forests of West Virginia. After making a profitable collection there, we returned to Washington July 10.

We left Washington for the autumn collecting on September 16, 1936. At Durbin, W. Va., we obtained the necessary permission to camp on Spruce Knob, the altitude of which is 4,860 feet. Our camp was 4,550 feet, and we were usually surrounded by clouds. As ravens abound there, we could hear them croaking most of the time. We added materially to the collection while we were there, in spite of the foggy and rainy weather. We learned from the old inhabitants that some time ago several porcupines had been killed on the lower ridges of the Knob.

After a stop at Summersville we continued to Flat Top and Cherry Pond Mountains, in the coal-mining region, where numerous birds and mammals were obtained. Returning to Huntington, we collected along the Ohio River up to Point Pleasant, making a fairly representative collection there. We then headed for home, stopping for 2 days at White Sulphur Springs, where we obtained the small subspecies of flying squirrel for which we had searched in the spring.

The success of this expedition was due largely to the courtesies and cooperation extended to us by local landowners and by the Conservation Commission of West Virginia.

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NEW FROG, *ELEUTHERODACTYLUS WETMOREI*,
FROM THE REPUBLIC OF HAITI.

BY DORIS M. COCHRAN.

A small collection of reptiles and amphibians from Haiti, secured in 1927 by Dr. Alexander Wetmore of the United States National Museum while travelling on funds provided for zoological collecting by the late Mr. B. H. Swales, has already yielded a genus of Anguid lizards¹ new to science, and a new species of *Chamaelinorops*,² a genus formerly known only from Navassa. The frog described below I recognized as being distinct at the time these other new forms were being studied, but as the specimens were not in a good state of preservation, its description was put off in the hope that fresh material from the type locality could be obtained. It seems unlikely that such material will be forthcoming, therefore the following description has been drawn up. It is a pleasure to name the species for its collector.

Eleutherodactylus wetmorei, new species.

Diagnosis.—Belly granular; no spinelike tubercle on upper eyelid; toes and fingers very slightly webbed, rounded at the tips; head moderate; snout normally rounded in profile; tibio-tarsal articulation reaching to posterior corner of eye; vomerine teeth in 2 oblique groups behind and between the choanae; thigh and groin heavily marked with dark blotches on a pale ground.

Type.—U. S. N. M. No. 72617, an adult from Fonds-des-Nègres, Haiti, taken by Dr. A. Wetmore on April 5, 1927, from the nest of a palm-chat, *Dulus dominicus*, together with two tree-toads, *Hyla dominicensis*.

Description of the type.—Tongue broad, apparently not emarginate

¹A new genus of Anguid Lizards from Haiti. Proc. Biol. Soc. Washington, vol. 40, June 30, 1927, pp. 91-92.

²A new species of *Chamaelinorops* from Haiti. Proc. Biol. Soc. Washington, vol. 41, Mar. 16, 1928, pp. 45-47.

behind; vomerine teeth in two long oblique groups some distance behind the choanae, their outer ends not extending beyond the inner borders of the choanae; head moderate, without ridges; no apparent subgular pouch; nostril much nearer tip of snout than eye, its distance from the eye slightly exceeding the diameter of the latter; upper eyelid much narrower than interorbital space; tympanum equal to one-half the diameter of the eye, its distance from the eye somewhat less than its own diameter; disks of fingers large, that of first finger equal to about three-fourths the area of the tympanum; first finger shorter than second; toes with a vestige of a web at the base; disks of toes moderate, slightly smaller than those of the fingers; subarticular tubercles well-developed; apparently a very small inner and a still smaller outer metatarsal tubercle; plantar tubercles weak; apparently no tarsal fold; the bent limbs being pressed along the sides, knee and elbow overlap; the hind limb being adpressed along the sides, the tibio-tarsal articulation reaches the posterior corner of the eye; the hind limbs being placed vertically to the axis of the body, the heels overlap considerably; apparently no series of elongate glands either above the tympanum or forming a dorsolateral fold; skin very faintly shagreened above; throat and breast smooth; a coarsely granular patch of skin between the thighs posteriorly, the granules apparently occurring also in the skin of the belly.

Dimensions.—Tip of snout to vent, 35 mm.; width of head, 15 mm.; tip of snout to posterior border of tympanum, 12 mm.; diameter of eye, 4 mm.; diameter of tympanum, 2.5 mm.; fore leg from axilla, 21 mm.; hind leg from vent, 53 mm.; vent to heel, 32 mm.

Color (in alcohol).—The ground color has badly bleached and altered, due to poor preservation, and appears now as a pale olive-buff. The color pattern is very distinct, however, and is unlike that of any other known *Eleutherodactylus* from Hispaniola. A broad pale band between the eyes is emphasized posteriorly by a narrow brown irregular line caused by the grouping of small brown dots which thickly cover the upper anterior parts of the body, the snout and forelegs, less thickly on the posterior parts and hind legs. The back of the thighs is strongly marked by very characteristic coarsely-reticulated dark brown blotches on a very light background. A few similar blotches appear on the front of the thigh and on the sides near the groin. The entire lower surface appears to be immaculate olive-buff. The sides of the snout and head are thickly peppered with small brown dots which are not arranged in any definite pattern.

Variation.—There are three other specimens of this species (U. S. N. M. Nos. 72618-20) with the same data as the type, but in even poorer condition. They all show the perfectly distinctive dark blotches on the back of the thigh and in the region of the groin. One of these, 72619, shows a brown semicircular line bordering the upper part of the tympanum on what appears to be a faint glandular ridge. The interocular light band may also be plainly seen on this frog. The other two specimens are devoid of head markings.

In 72620, a small individual somewhat less shriveled than the type, the disk of the third finger very nearly covers the tympanum. In 72619 only

is the granulation of the belly skin very apparent, the other specimens having suffered considerably in the mutilation of this part of the body. On none of the paratypes can any longitudinal glands or dorsolateral folds be made out, this species evidently being of the smoother skinned ones. The paratypes are all smaller than the type, measuring respectively 28, 29 and 32 mm. from snout to vent.

Fresh material from the type locality will be needed to confirm some of the characters given in the description. In the key, the new form falls nearest to *auriculatus*, from which it may be readily told by the color pattern of the thighs.